INVASIVE SPECIES CONTROL PLAN

Central Hudson Gas and Electric
A and C Lines Rebuild Project
Dutchess County, New York

PURPOSE AND SCOPE

Central Hudson Gas & Electric (CHG&E) is proposing to rebuild the 115kV A and C transmission lines between Pleasant Valley and East Fishkill in Dutchess County, New York. The A and C lines were originally constructed in 1948. Currently, the poles and conductors are in disrepair. The proposed plan is to replace all structures and conductors, staying within the current existing right-of-way. Existing pole structures are currently double wood poles with an average height of 60 feet. Replacement poles are anticipated to be single pole structures in the same locations (in most cases) as the existing poles and will range in height between 75-80 feet. The total length of the project is approximately 11 miles within an existing approximate 150 foot-wide right-of-way.

Wetland and stream corridors are sensitive and abundant ecological resources in the A&C Lines Rebuild project area. Construction activities of the transmission line may disturb these resources. A potential threat to sensitive ecological resources is the risk of introduction or spread of invasive non-native vegetative species, either through the movement of topsoil, fill, construction equipment, or during restoration activities.

It is the purpose of this Invasive Species Control Plan ("ISCP") to prevent the introduction and spread of the target invasive vegetative species to new locations within State regulated wetlands and protected streams, occurring as a result of transmission line construction activities. This ISCP will implement preventative measures at currently infested district regulator stations and at State regulated wetlands and protected streams where invasive species have not been documented ("ISCP Target Areas").

Mapped State-regulated wetlands within the vicinity of the project area include freshwater wetlands PV-3, PV-18, PV-28, PV-35, PV-57, HJ-4 and HJ-72. Mapped State protected streams crossed by the ROW include the Wappinger Creek, an unnamed tributary to Wappinger Creek, Sprout Creek and an unnamed tributary to Sprout Creek.

TARGET SPECIES AND AREAS

Invasive species are defined by New York State as non-native to the ecosystem under consideration and whose introduction causes or is likely to cause economic or environmental harm or harm to human health (Section 19-1703(10) of the Environmental Conservation Law). For the purposes of this ISCP, target invasive species shall be as defined in the New York State Department of Environmental Conservation's ("NYSDEC") May 2012 "Revised Interim List of Invasive Plant Species in New York State". This list is provided as Attachment 1.

Site-specific wetland and stream delineations and other ecological investigations were conducted along the project's right-of-way ("ROW") corridor during the fall of 2012. During these investigations, approximately 43 wetlands and streams were delineated within the ROW and were a mix of shallow and deep emergent wetlands, wet meadows, shrub wetlands, and forested wetlands. Invasive species percent coverage and species vary greatly throughout the ROW, but were observed in at least 90% of the delineated areas or their immediate vicinity. Although not documented, invasive species were also commonly observed throughout upland areas of the ROW and within upland and wetland areas adjacent to the ROW. The following target invasive species were observed within the project area: purple loosestrife (*Lythrum salicaria*), European common reed grass (*Phragmites australis*), reed canary grass

(*Phalaris arundinacea*), honeysuckle (*Lonicera morrowii*), common buckthorn (*Rhamnus cathartica*), multiflora rose (*Rosa multiflora*), and privet (*Ligustrum obtusifolium*). Purple loosestrife was the most commonly encountered invasive species, occurring in approximately 75% of delineated wetlands.

During the ecological investigations conducted during the fall of 2012, invasive species were NOT observed at the following delineated wetlands and streams including State-regulated wetlands (and their adjacent areas) and protected streams:

- Wetland A (Class B(t) - Wappinger Creek)
- Wetland S (unnamed intermittent stream)
- Wetland T (unnamed intermittent stream)

During field investigations conducted in the fall of 2012, invasive species were documented at the following delineated wetlands including State-regulated wetlands (and their adjacent areas) and protected streams:

- Wetland B (Class B - tributary of Wappinger Creek)
- Wetland C
- Wetland D (PV-3)
- Wetland E (PV-3)
- Wetland F (Class B - tributary of Wappinger Creek)
- Wetland G
- Wetland H
- Wetland I
- Wetland J (Class B stream)
- Wetland K
- Wetland L
- Wetland M
- Wetland N
- Wetland O (PV-18)
- Wetland P
- Wetland Q (PV-28)
- Wetland R (PV-28)
- Wetland U (PV-35 and Class C(t) stream)
- Wetland V
- Wetland W
- Wetland X
- Wetland Y
- Wetland Z
- Wetland AA
- Wetland BB
- Wetland CC
- Wetland DD (PV-57)
- Wetland EE (PV-57)
- Wetland FF (PV-57)
- Wetland GG
- Wetland HH
- Wetland II (HJ-4)
- Wetland JJ
- Wetland KK
- Wetland LL
- Wetland MM
- Wetland NN
- Wetland OO
- Wetland PP (HJ-72, Class C(t) - Sprout Creek)
- Wetland QQ
- Wetland RR
- Wetland SS
- Wetland TT
- Wetland UU

PROPOSED CONTROL MEASURES

Meeting the goal of this ISCP will be achieved by applying the control measures and procedures in the ISCP Target Areas as described in greater detail in Sections 5.0 – 7.0 of the Environmental Energy Alliance of New York's (EEANY) Best Management Practice for Preventing the Transportation of Invasive Plant Species, provided as Attachment 2.

ATTACHMENT 1

Revised Interim List of Invasive Plant Species in New York State

REVISED INTERIM LIST OF INVASIVE PLANT SPECIES IN NEW YORK STATE

14 May 2012

Purpose

This list was not prepared pursuant to ECL 9-1705 (5) (h), the so-called "four-tier system".

The primary purpose of this list to inform New York State agencies so they can incorporate invasive species management into their funding, regulatory and other activities pursuant to ECL 9-1705 (b) and especially ECL 9-1709 (2):

> "...[DEC] in cooperation with [DAM] shall have the authority...to... coordinate state agency and public authority actions to do the following: (a) **phasing out uses of invasive species**; (b) **expanding use of native species**; (c) **promoting private and local government use of native species as alternatives to invasive species**; and (d) wherever practical and where consistent with watershed and/or regional invasive species management plans, **prohibiting and actively eliminating invasive species at project sites funded or regulated by the state**;...."

It is intended to inform regulatory actions pursuant to existing statutory authorities, e.g., protection of waters (ECL Article 15), wetlands (ECL Articles 24 and 25), State Environmental Quality Review (ECL Article 8), biocontrol (ECL Article 11), and pesticides (ECL Article 33). This list is also intended to inform non-regulatory management decisions and actions, such as for planning and priority-setting, prevention, early detection, monitoring, rapid response, control and eradication, restoration, research, and public education.

This list does not include *all* plant species that are invasive or potentially-invasive in New York State. Rather, it includes many of those plant species that are widely-recognized as invasive or potentially-invasive in New York State. ECL 9-1703 (10) defines "invasive species" as:

> "...a species that is: (a) nonnative to the ecosystem under consideration; and (b) whose introduction causes or is likely to cause economic or environmental harm or harm to human health. For the purposes of this paragraph, the harm must significantly outweigh any benefits."

Thus, when complying with the provisions of 9-1709, agency staff use professional judgment in assessing the potential environmental harm (or harm to human health) when considering particular species in particular contexts.

Invasive Plants Field and Reference Guide: An Ecological Perspective of Plant Invaders of Forests and Woodlands
http://www.fs.fed.us/ne/newtown_square/publications/information_bulletins/NA-TP-05-04.pdf
Mistaken Identity? Invasive Plants and their Native Look-alikes: an Identification Guide for the Mid-Atlantic
http://www.nybg.org/files/scientists/rnaczi/Mistaken_Identity_Final.pdf

* * *

REVISED INTERIM LIST OF INVASIVE PLANT SPECIES IN NEW YORK STATE

Species are assigned to the most commonly known plant catagory, although overlap may exist.

Floating & Submerged Aquatic		
Common Name	**Scientific Name**	**Draft Rank**
Water Thyme	*Hydrilla verticillata*	Very High
Common Frogbit	*Hydrocharis morsus-ranae*	Very High
Floating Primrose Willow	*Ludwigia peploides*	Very High
Broadleaf Water-milfoil	*Myriophyllum heterophyllum*	Very High
Eurasian Water-milfoil	*Myriophyllum spicatum*	Very High
Water Chestnut	*Trapa natans*	Very High
Rock Snot (diatom)	*Didymosphenia geminata*	Not Ranked
Carolina Fanwort	*Cabomba caroliniana*	High
Brazilian Waterweed	*Egeria densa*	High
Parrot-feather	*Myriophyllum aquaticum*	High
Yellow Floating Heart	*Nymphoides peltata*	High
Curly Pondweed	*Potamogeton crispus*	High

Emergent Wetland & Littoral		
Common Name	**Scientific Name**	**Draft Rank**
Uruguayan Primrose-willow	*Ludwigia grandiflora spp. hexapetala*	Very High
Floating Primrose-willow	*Ludwigia peploides spp. glabrescens*	Very High
Purple Loosestrife	*Lythrum salicaria*	Very High
European Common Reed Grass	*Phragmites australis*	Very High
Tall Glyceria	*Glyceria maxima*	High
Yellow Iris	*Iris pseudacorus*	High
Broad-leaf Pepper-grass	*Lepidium latifolium*	High
Marsh Dewflower	*Murdannia keisak*	High
Reed Canary-grass	*Phalaris arundinacea*	High

Terrestrial – Herbaceous		
Common Name	**Scientific Name**	**Draft Rank**
Garlic Mustard	*Alliaria petiolata*	Very High
Slender False Brome	*Brachypodium sylvaticum*	Very High
Black swallow-wort	*Cynanchum louiseae*	Very High
Pale Swallow-wort	*Cynanchum rossicum*	Very High
Japanese Knotweed	*Fallopia japonica*	Very High
Japanese Stilt Grass	*Microstegium vimineum*	Very High
Lesser Celandine	*Ranunculus ficaria*	Very High
Wild Chervil	*Anthriscus sylvestris*	High
Mugwort	*Artemisia vulgaris*	High
Small Carpgrass	*Arthraxon hispidus*	High
Narrowleaf Bittercress	*Cardamine impatiens*	High
Spotted Knapweed*	*Centaurea stoebe ssp.*	High

	micranthos	
Canada Thistle	*Cirsium arvense*	High
Chinese Yam	*Dioscorea polystachya*	High
Cut-leaf Teasel	*Dipsacus laciniatus*	High
Winter Creeper	*Euonymus fortunei*	High
Cypress Spurge	*Euphorbia cyparissias*	High
Leafy Spurge	*Euphorbia esula*	High
Giant Hogweed	*Heracleum mantegazzianum*	High
Japanese Hops	*Humulus japonicus*	High
Cogon Grass	*Imperata cylindrica*	High
Chinese Lespedeza	*Lespedeza cuneata*	High
Garden Loosestrife	*Lysimachia vulgaris*	High
Chinese Silver Grass	*Miscanthus sinensis*	High
Wavyleaf Basketgrass	*Oplismenus hirtellus*	High
Cup-plant	*Silphium perfoliatum*	High

Terrestrial - Vines		
Common Name	**Scientific Name**	**Draft Rank**
Oriental Bittersweet	*Celastrus orbiculatus*	Very High
Japanese Honeysuckle	*Lonicera japonica*	Very High
Mile-a-minute Weed	*Persicaria perfoliata*	Very High
Kudzu	*Pueraria montana*	Very High
Porcelain Berry	*Ampelopsis brevipedunculata*	High
Japanese Virgin's-bower	*Clematis terniflora*	High

Terrestrial – Shrubs & Trees		
Common Name	**Scientific Name**	**Draft Rank**
Norway Maple	*Acer platanoides*	Very High
Japanese Angelica Tree	*Aralia elata*	Very High
Japanese Barberry	*Berberis thunbergii*	Very High
Autumn Olive	*Elaeagnus umbellata*	Very High
Winged Euonymus	*Euonymus alatus*	Very High
Amur Honeysuckle	*Lonicera maackii*	Very High
Morrow's Honeysuckle	*Lonicera morrowii (incl. xbella)*	Very High
Common Buckthorn	*Rhamnus cathartica*	Very High
Black Locust	*Robinia pseudoacacia*	Very High
Multiflora Rose	*Rosa multiflora*	Very High
Wineberry	*Rubus phoenicolasius*	Very High
Rusty Willow	*Salix atrocinerea*	Very High
Sycamore Maple	*Acer pseudoplatanus*	High
Smooth Buckthorn	*Frangula alnus*	High
Border Privet	*Ligustrum obtusifolium*	High
Amur Cork Tree	*Phellodendron amurense*	High
Beach vitex	*Vitex rotundifolia*	High

* Brown and Black Knapweed have also been known to be problematic in grassland habitats.

~ END ~

ATTACHMENT 2

EEANY Best Management Practice for Preventing the Transportation of Invasive Plant Species

Best Management Practice for Preventing the Transportation of Invasive Plant Species

Environmental Energy Alliance of New York

4/26/2012

Table of Contents

Appendices

1.0 Introduction

Invasive species are non-native plant, animal, or microbial species that cause, or are likely to cause, economic or ecological harm or harm to human health (Presidential Executive Order 13112). Invasive species means, "A species that is nonnative to the ecosystem under consideration; and whose introduction causes or is likely to cause economic or environmental harm or harm to human health. Harm must significantly outweigh benefit" [New York Environmental Conservation Law §9-1703(10)(a)] Invasive species have been introduced by human action into a region outside their natural geographic range. Introductions occur along a variety of pathways or vectors, either intentionally such as intentional transport of a species for trade, or by accidental means, as in the case of stowaway species found in the ballast-water of ocean-going vessels.

Most scientists regard invasive species as second only to habitat loss as a threat to biodiversity. The presence of invasive species in a given region is one of the leading causes of endangerment to species native to that region. On a nationwide basis, about half of plant and animal species listed as federally Endangered or Threatened are at risk because of invasive species.

Currently, annual economic losses due to invasive species in the U.S. are estimated at over $138 billion (Pimentel et al. 2000). These losses include damage to crops and pasture, forest losses, damage from insect and other invertebrate pests, human diseases, and associated control costs.

In an effort, where feasible, to limit the introduction and spread of *invasive plant species*, this Best Management Practice ("BMP") will be employed when performing activities that occur in *jurisdictional areas* as authorized by the DEC. The BMP identifies procedures that will be incorporated into routine work practices to prevent the introduction and spread of *invasive plant species*.

2.0 Definitions

The following definitions are applicable to this BMP.

***Environmental Energy Alliance of New York (EEANY)* –** is an association of electric and gas Transmission and Distribution (T&D) companies and electric generating companies that provide energy services in the State of New York. This BMP was prepared by the Land Use Subcommittee of the T&D Committee, which currently represents the following members: Central Hudson Gas & Electric Corporation, Consolidated Edison Company of New York, Long Island Power Authority, National Grid USA Service Company, Inc., New York Power Authority, New York State Electric & Gas Corporation, Orange and Rockland Utilities, and Rochester Gas & Electric Corporation.

Invasive plant species – species that are non-native to the ecosystem under consideration and whose introduction causes or is likely to cause economic or environmental harm or harm to human health (Management Plan National Invasive Species Council, 2001). For purposes of this document, *invasive plant species* are those contained on the "Revised Interim List of Invasive Plants Species in New York State" dated January 23, 2012 developed by NYS DEC (Appendix – 2).

Invasive species plant material – seeds, roots, or pieces of plant material that could germinate into live plants.

Jurisdictional Area – lands under the statutory jurisdiction of the NYSDEC such as certain freshwater wetlands and adjacent areas, tidal wetlands, certain water bodies, and any protected and species habitat areas specified by natural resource supervisors.

NYSDEC General Permit – a NYSDEC permit authorizing certain utility line activities under Articles 15, 24, and 25 of NYS Environmental Conservation Law. These activities include: inspection, maintenance, repair, restoration, reconstruction of pre-existing structures, vegetation cutting and trimming, and emergency actions affecting tidal wetlands, protected waters, regulated freshwater wetlands, adjacent areas, and protected habitat areas.

Regulated Activity – an activity taking place within a *jurisdictional area* that requires authorization from the NYSDEC.

Utility Rights-of-Way - is an easement-acquired or fee-owned corridor in which gas or electric transmission facilities are located.

3.0 Purpose or Goal

This BMP provides guidance for inspecting and cleaning vehicles and equipment to help prevent the spread of invasive plant species. The procedures identified within this manual outline cost-effective and realistic practices that *Environmental Energy Alliance of New York (EEANY)* utility members will implement when conducting a *regulated activity* within a *jurisdictional area*.

4.0 Applicability

This management practice applies to all *EEANY* utility members performing NYSDEC *regulated activities* within *jurisdictional areas* with populations of *invasive plant species*.

5.0 Procedures

There are two procedural options for EEANY companies to follow; one is to conduct the BMPs as detailed in the following sections of this plan or to conduct vegetation surveys for invasive species as outlined in Section 5.6.Field crews will be provided a flowchart to assist with determining when to implement these best management practices (Appendix 1).

The following detailed practices will apply where feasible when invasive species are present and when the work is covered by a GP or individual wetland permit.

5.1 Equipment

a. Equipment must arrive clean without visible soil clumps, plant or animal material.
b. Equipment includes, but is not limited to, vehicles, trailers, machinery, matting, boats, barges, and other watercraft, tools, and other materials.
c. Transporting equipment will be cleaned before accepting a new load.
d. Consider tracking pads as a means to remove soil from equipment. If tracking pads are used they must be cleaned after each use in a specific area.
e. Equipment will be cleaned using one of the methods listed below (use the most effective method that is practical):
    - Brush, broom, shovel or other similar hand tools (used without water)
    - High pressure air (when feasible)
f. Equipment must be cleaned within one of the below areas:
    - the infested work area

- an area immediately adjacent to the work area that is itself currently infested with *invasive plant species*

g. Do not clean equipment in or near waterways as it may promote the spread of *invasive plant species* downstream.
h. Where possible, staging areas will be established in locations that are free of *invasive plant species*. Otherwise, all equipment will be cleaned using the techniques described in 5.3 before leaving the area.
i. When wetland matting is required, it will arrive on site visibly clean, be installed prior to any activities, and will be appropriately cleaned before leaving the area.

5.2 Inspection and Cleaning

a. Inspections and cleaning should be conducted especially when moving from an infested area to an un-infested area.
b. Prior to exiting work area clothing, footwear, and gear should be cleaned of visible signs of plant material.
c. Carry appropriate cleaning equipment (e.g. wire brush, small screwdriver, boot brush) to help remove soils, seeds, and plant material.
d. Preferred locations for cleaning are those where:
    - Work activities are taking place;
    - *Invasive plant species* are already established; or
    - An area immediately adjacent to the work site that is itself currently infested with *invasive plant species*.
e. No cleaning of clothing, footwear, gear in or adjacent to waterways – it may promote the spread of *invasive plant species* downstream.
f. Cleaning will include brushing or self "pat down" of clothing, footwear, and other personal gear within the infested work area.

5.3 Disposal of Impacted Material

a. Preferred locations for equipment cleaning are those areas where work activities are taking place or immediately adjacent areas currently impacted with *invasive plant species*.
b. Do not clean equipment, vehicles or trailers in or near waterways.
c. Do not dispose of soil, seeds, or plant material in storm drains.
d. Any plant materials that are incidentally removed after completion of steps a-c from site will be properly disposed of in a manner that prevents viable plant parts and propagules from being spread

5.4 Other Prevention Measures

a. Reasonable steps to avoid transportation of *invasive plant species,* including small, isolated, populations, will be taken.
b. As an alternative to cleaning, ancillary equipment such as spare tires and winches when feasible will be covered when entering *jurisdictional areas* containing populations of *invasive plant species*.
c. Vehicular access into areas containing populations of *invasive plant species* will be reduced or minimized to the maximum extent practical. When practical vehicles will be parked outside of the impacted area and crews will enter on foot.

5.5 Site Restoration

a. Minimize soil disturbances by reducing work areas and reducing activities that may result in soil disturbances.
b. Re-vegetate bare soils as soon as feasible to minimize the possible establishment of *invasive plant species*. When seeding, non-invasive or local native species must be used (seed mixes will vary from region to region). Seed will be broadcasted over all bare soil areas and covered with a mulch layer such as straw. Choose appropriate seed mixes based on site conditions.
c. On steep sloping areas (i.e. slopes exceeding 20 percent), soil erosion control matting (i.e. jute mesh or straw blankets) must be installed over the seeded area. The matting should be secured with biodegradable tacks.
d. Stabilize disturbed soils using appropriate erosion and sediment control procedures as soon as possible. Use invasive free materials such as straw or wood chips; avoid using hay.

5.6 Vegetation Survey (Optional)

If the above BMPS are not followed, then vegetation surveys of site(s) to detect populations of invasive species should be made in advance prior to any activities. If the optional vegetation survey is performed and no invasive species are found, then the procedures outlined above in section 5.1 through 5.5 will not be followed. Survey inspections can be integrated with other activities such as ROW inspections and should be kept as simple as possible to meet invasive species management objectives. If significant populations of invasive species are detected on surveys, then Sections 5.1 to 5.5 apply.

a. Prior to implementing activities scout for, locate and document significant invasive species infestations.
b. Consider the need for actions based on: 1) the degree of invasiveness; 2) severity of the current infestation; 3) amount of additional habitat or host at risk for invasion; and 4) feasibility of managing the spread.

c. Plan activities to limit the potential for introduction and spread of invasive species, prior to construction.
d. Provide appropriate resources in identification of known invasive species for corridor workers.

6.0 Training

A flowchart (Appendix 1) to assist field crews on when to implement the above procedures will be distributed to all field crews.

All transmission vegetation management planners, foresters, and ROW maintenance personnel will be trained in the procedures outlined in Section 5.0 above. Additionally, training sessions focused on the identification of *invasive plant species* identified in Appendix 3 will be conducted by the individual utility companies. This may take the form of hard copy materials, tail gate briefings and/or presentations during regular staff meetings.

7.0 Emergency Work

During emergencies, *EEANY* utility members will strictly comply with the Emergency Action condition protocol outlined in the *NYSDEC General Permit*. Appropriate site-specific *invasive plant species* controls and restoration efforts will be determined on an individual basis in conjunction with the regional NYSDEC office.

8.0 References

- Electric Power Research Institute, 2008 "Invasive Species and Utility Rights of Way: A Review of the Science". EPRI Publication number 1014032, Palo Alto, CA

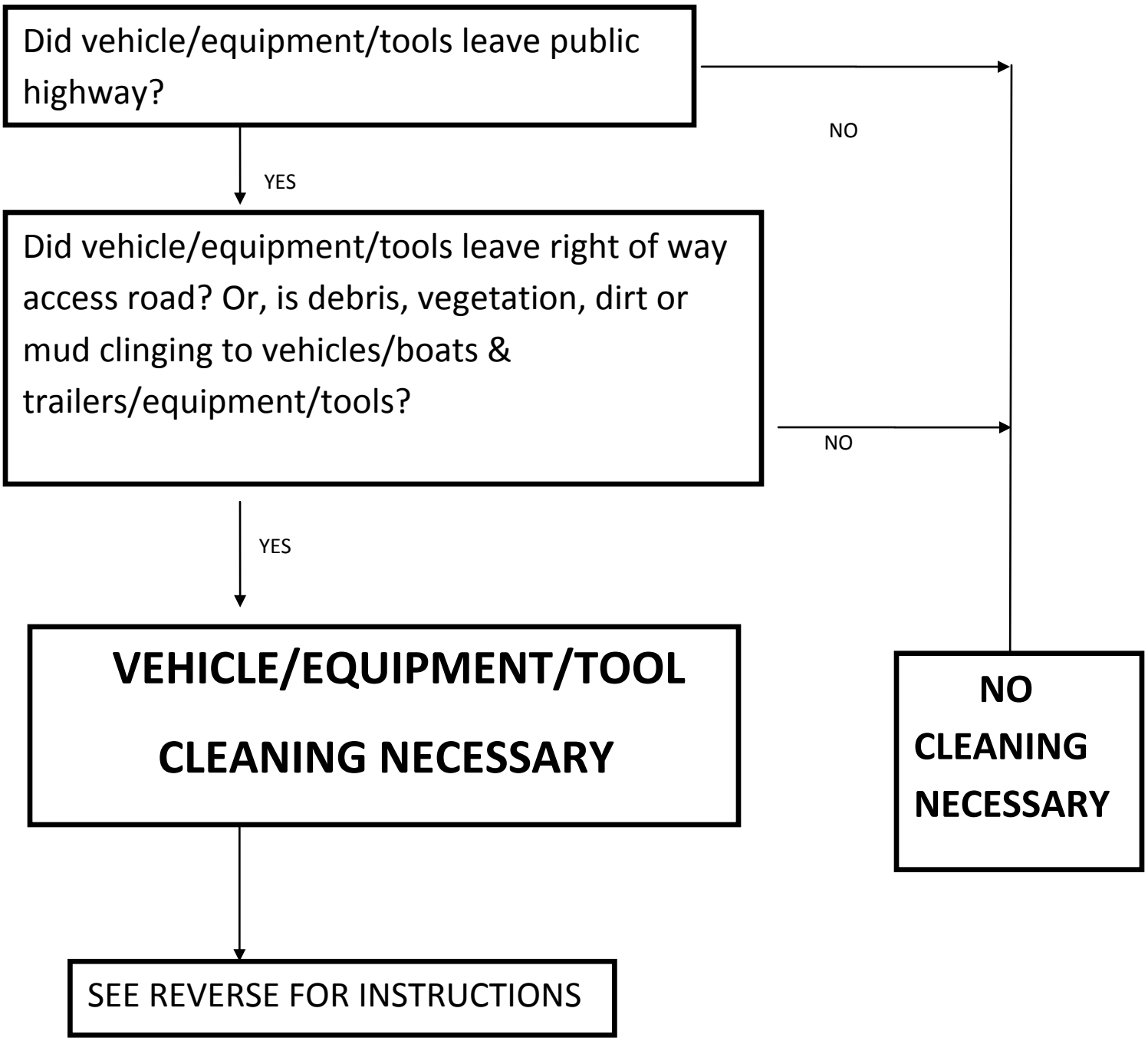
- Pimentel, D., Lach, L., Zuniga, R. & Morrison, D**.** 2000. Environmental and economic costs of nonindigenous species in the United States. Bioscience, 50(1): 53-65.

- Presidential Executive Order 13112. Volume 64, Federal Register 1999. Invasive Species.

- Wisconsin Council on Forestry. 2010. *Invasive Species Best Management Practice for Transportation and Utility Rights-of-Way*.

APPENDIX - 1

BEST MANAGEMENT PRACTICES (BMP'S) for INVASIVE SPECIES TRANSPORT PREVENTION



PRIOR TO LEAVING THE RIGHT-OF-WAY

- Prior to loading vehicle/equipment/tools remove as much debris, vegetation, dirt and mud clinging to the equipment as feasible using a brush, broom, shovel or other similar hand tool.

- High pressure air can be used on site for cleaning debris, vegetation, dirt and mud off vehicles/equipment/tools.

- Pick-ups and other small road vehicles shall remove on the right-of-way, as much debris, vegetation, dirt and mud clinging to vehicle as feasible prior to entering the highway.

- Small equipment/tools/boots shall be cleaned on site before removal or storage.

- Arrangements can be made for onsite cleaning or washing of vehicles/equipment/tools if deemed necessary.

APPENDIX - 2

REVISED INTERIM LIST OF INVASIVE PLANT SPECIES IN NEW YORK STATE

23 January 2012

Purpose

This list was not prepared pursuant to ECL 9-1705 (5) (h), the so-called "four-tier system".

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It is intended to inform regulatory actions pursuant to existing statutory authorities, e.g., protection of waters (ECL Article 15), wetlands (ECL Articles 24 and 25), State Environmental Quality Review (ECL Article 8), biocontrol (ECL Article 11), and pesticides (ECL Article 33). This list is also intended to inform non-regulatory management decisions and actions, such as for planning and priority-setting, prevention, early detection, monitoring, rapid response, control and eradication, restoration, research, and public education.

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Floating Primrose Willow	*Ludwigia peploides*	Very High
Broadleaf Water-milfoil	*Myriophyllum heterophyllum*	Very High
Eurasian Water-milfoil	*Myriophyllum spicatum*	Very High
Water Chestnut	*Trapa natans*	Very High
Rock Snot (diatom)	*Didymosphenia geminata*	
Carolina Fanwort	*Cabomba caroliniana*	High
Brazilian Waterweed	*Egeria densa*	High
Parrot-feather	*Myriophyllum aquaticum*	High
Yellow Floating Heart	*Nymphoides peltata*	High
Curly Pondweed	*Potamogeton crispus*	High

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Common Name	**Scientific Name**	**Rank**
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European Common Reed Grass	*Phragmites australis*	Very High
Tall Glyceria	*Glyceria maxima*	High
Yellow Iris	*Iris pseudacorus*	High
Marsh Dewflower	*Murdannia keisak*	High
Reed Canary-grass	*Phalaris arundinacea*	High

Terrestrial - Herbaceous		
Common Name	**Scientific Name**	**Rank**
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Slender False Brome	*Brachypodium sylvaticum*	Very High
Oriental Bittersweet	*Celastrus orbiculatus*	Very High
Black swallow-wort	*Cynanchum louiseae*	Very High
Pale Swallow-wort	*Cynanchum rossicum*	Very High
Japanese Stilt Grass	*Microstegium vimineum*	Very High
Lesser Celandine	*Ranunculus ficaria*	Very High
Wild Chervil	*Anthriscus sylvestris*	High
Mugwort	*Artemisia vulgaris*	High
Small Carpgrass	*Arthraxon hispidus*	High
Narrowleaf Bittercress	*Cardamine impatiens*	High
Spotted Knapweed*	*Centaurea stoebe ssp. micranthos*	High
Canada Thistle	*Cirsium arvense*	High
Chinese Yam	*Dioscorea polystachya*	High
Cut-leaf Teasel	*Dipsacus laciniatus*	High
Winter Creeper	*Euonymus fortunei*	High
Cypress Spurge	*Euphorbia cyparissias*	High
Leafy Spurge	*Euphorbia esula*	High

Giant Hogweed	*Heracleum mantegazzianum*	High
Japanese Hops	*Humulus japonicus*	High
Cogon Grass	*Imperata cylindrica*	High
Broad-leaf Pepper-grass	*Lepidium latifolium*	High
Chinese Lespedeza	*Lespedeza cuneata*	High
Garden Loosestrife	*Lysimachia vulgaris*	High
Chinese Silver Grass	*Miscanthus sinensis*	High
Wavyleaf Basketgrass	*Oplismenus hirtellus*	High
Cup-plant	*Silphium perfoliatum*	High

Terrestrial - Vines		
Common Name	**Scientific Name**	**Rank**
Japanese Honeysuckle	*Lonicera japonica*	Very High
Mile-a-minute Weed	*Persicaria perfoliata*	Very High
Kudzu	*Pueraria montana*	Very High
Porcelain Berry	*Ampelopsis brevipedunculata*	High
Japanese Virgin's Bower	*Clematis terniflora*	High

Terrestrial - Shrubs & Trees		
Common Name	**Scientific Name**	**Rank**
Norway Maple	*Acer platanoides*	Very High
Japanese Angelica Tree	*Aralia elata*	Very High
Japanese Barberry	*Berberis thunbergii*	Very High
Autumn Olive	*Elaeagnus umbellata*	Very High
Winged Euonymus	*Euonymus alatus*	Very High
Amur Honeysuckle	*Lonicera maackii*	Very High
Morrow's Honeysuckle	*Lonicera morrowii*	Very High
Uruguayan primrose willow	*Ludwigia grandiflora*	Very High
Common Buckthorn	*Rhamnus cathartica*	Very High
Black Locust	*Robinia pseudoacacia*	Very High
Multiflora Rose	*Rosa multiflora*	Very High
Wineberry	*Rubus phoenicolasius*	Very High
Gray Florist's Willow	*Salix atrocinerea*	Very High
Sycamore Maple	*Acer pseudoplatanus*	High
Porcelain Berry	*Ampelopsis brevipedunculata*	High
Smooth Buckthorn	*Frangula alnus*	High
Border Privet	*Ligustrum obtusifolium*	High
Amur Cork Tree	*Phellodendron amurense*	High
Beach vitex	*Vitex rotundifolia*	High

* Brown and Black Knapweed have also been known to be problematic in grassland habitats

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